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Of the Cactus And Succulent Society
Of America

Vol. XVI

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FROM "PENTHOUSE IN BOGOTA"

By VIRGINIA PAXTON

Reynal and Hitchcock, Publishers

Pan de yuca, bread made from the yucca flower's big tuber root, which is ground into flour, comes in crescent-shaped rolls, with a crisp shell and airholes inside. It tastes like a delicious popover. Pen de yuca is good for altitudosis, as it is a form of starch easily digested, the yucca creating an alkaline rather than an acid reaction in the stomach. No matter how long you live in Bogota, you never get tired of pan de yuca.

Reported by DANIEL NEUMANN.

A ROUND ROBIN

How about a "Round Robin" among the JOURNAL subscribers who are not close enough to an Affiliate to enjoy its privileges? This might serve to bring iso-lated cactophiles into closer contact with each other. For full information, address,

MRS. MAYBELLE PLACE, President. 645 W. 40 Place, Los Angeles 37, Calif.

FROM JACK WHITEHEAD

I am having some more than usual success with my plants in Crassulaceae this year. I am finding out that we know very little about our native Dudleyas—and this "we" includes one Whitehead, too. In spite of published statements to the contrary I find that at least some *Dudleya* species propagate readily from leaves; some hybrids between extremely different forms (named species) are enlightening in many ways; experiments in growing some of the rather difficult Dudleyas in moss culture have given remarkable results. And, so it goes! We live and learn.

SCIENCE NEWS LETTER, MARCH 25, 1944

Penicillin has been found to check the growth of a bacterial species responsible for a plant disease, the destructive rot that has killed off a number of groves of the picturesque giant cactus, or sahuaro, in the Southwest. This discovery, believed to be the first proven instance of penicillin's ability to knock out a plant-disease germ, was made in studies at the Uni-versity of Arizona, by Prof. J. G. Brown and Miss Alice M. Boyle.

The drug was used on colonies of the bacterium technically known as Erwinia carnegieana, growing on culture media in laboratory glass vessels.

Reported by CHAS. R. COLE.

HUMMEL'S VICTORY PICTURE BOOK

The third edition of this 40-page book of cactus and succulent pictures is now ready for distribution at 25c each. We propose about three more of these books during the year if other dealers will follow Hummel's lead. These four books can then be bound in a separate volume and it will be the first picture book of its kind ever published. Order your copy now. The 148 pictures of cacti and succulents in their juvenile stages are invaluable for beginners, especially so because they all carry their common names. Send 25c in coin or stamps to THE CACTUS JOURNAL, Box 101, Pasadena 16, Calif. Foreign 35 cents.

EPIPHYLLUM BOOK

The acute labor shortage and the large volume of essential printing that must be done will delay the production of the Epiphyllum Book. We have perhaps the most valuable material ever assembled on the subject and this coming summer we will be able to recheck our copy as the plants flower.

Two other books are in the throes of production—

titles to be announced later.

From The Gardeners' Chronicle, Aug., 1940 (London), Courtesy of E. O. Orpet.

From Lima, Peru, we travelled to Arequipa (8000 ft.) which is one of the most delightful spots in South America. Then on to Jujuy and Telcara. Climbing up into the Sierras one passes through dry, almost desert, country filled with Cactus of many kinds, among which the giant Cereus types (four) form a really striking feature of the landscape.

These Cacti grow so much as forty feet tall with a stout, woody stem, the older plants forming a dense, candelabra head. The flowers are white, or rarely red, some six or eight inches long and tubular, with a wide corolla. They are visited by one of the largest known species of humming birds. It is a pleasant picture to see these dark-colored but elegant birds hovering around the great white flowers. The wood of these Cacti is the only timber available in these parts, apart from the quick-growing Poplar and Willow of the valleys. It is used largely in making furniture and in construction. The appearance is that of a coarse loofah, but it is extremely hard and takes an excellent polish. The boards made from these hollow trunks are usually about a foot wide, or a little more. The peasants assured us that it is one of the most durable materials which they have for construction work and 'stands a hundred years of wear.' "



Fig. 34. Looking up the estuary that forms Mazatlan's harbor. Mazatlan is around a bend to the left, the flat coconut covered island is out of sight at the right. In the distance are some of the "hills near the town overlooking the sea" around whose base grows Cephalocereus purpusii. In the fore-ground are Raibbunia alamosensis and Opunia wilcoxia.

Cephalocereus purpusii; Cardon barbon Old Goat Whiskers

By EDGAR M. BAXTER

Photographs by the author

In 1930 I was collecting through the lower part of Baja California and frequently heard about a "Senor Poor pooss" who had collected there "hace muchos anos" and had lost a lot of his collections in a shipwreck. Senor Purpus was Dr. C. A. Purpus, for whom Cephalocereus purpusii was named. He had collected the plant near Mazatlan, Sinaloa State, Mexico, even before Dr. Rose and his companions gathered it in 1910. I looked up references to Dr. Purpus, and in one reading or another came upon this cactus named for him. It looked interesting, was not shown in illustrations, and was so close to where I had just been that I determined some day to look for it. The chance did not come for ten years.

Mazatlan is best reached by train down the West Coast from Nogales, Arizona. A tip if you should ever make the trip—buy your ticket to Nogales, Arizona, and wire to Nogales, Sonora for your reservations from Nogales to Mazatlan. Then, buy some pesos across the border and pick up your reservations with pesos.

You can even get your same seat in the Pullman with a little luck, and the cost is much less than buying a ticket all the way through. The trip south carries you through the whole length of Sonora State, across its many rich valleys, and along low hills and cuts where many kinds of cactus may be seen. Most unusual, I thought, were the bushes of *Rathbunia alamosensis* heavily patched with bright red flowers.

Arriving in Mazatlan backwards (the train backs down the peninsula so as to be headed out when ready to continue south) you may choose from the Belmar, Central, or Palacio Hotels. The Belmar, on the beach, has dinner with a dance and entertainment each evening. The cost is about 14 pesos, or \$2.75 daily which includes all meals. I stayed in the Palacio for 57c a day (three pesos fifty). Meals were good; the only poor feature was that when water was drawn in the kitchen, it wouldn't reach my second floor shower and unfailingly water was drawn for washing just as I finished soaping myself.

Britton and Rose say Cephalocereus pur-

pusii is to be found "on the hills near the town overlooking the sea." Another publication says, "Along the seacoast at Mazatlan." Arriving at midnight, I was out early along the seacoast to the north. All day spent in that direction did not turn up even an Opuntia (which I had planned to overlook on this trip, to confound my acquaintances who predicted my return with arm loads of these favorites of mine). The next day I went around the end of the small peninsula on which Mazatlan is located. A high, steepsided island is connected with the mainland by a stone breakwater. Inside of the point and island is the mouth of an estuary that runs many miles inland. Across the estuary is a flat sandy island that runs away to the south. The end near Mazatlan is covered with coconut trees. Southerly it stretches into sand flats that prevent any ship landings for many, many miles.

The connected island was forested with tall plants of *Pachycereus pecten-aboriginum*, whose fruits were purportedly used as combs by the aborigines!!! (The exclamation points are mine, because this part of America was settled before the Pilgrim Fathers landed and I can't figure out who was here to see the aborigines comb their hair.) To get on with the story—the rocky island has a donkey path leading up to the lighthouse on its peak. After following this path for a short way I branched off into the brush and saw that there were interesting plants

here. It was getting late, so I walked back to town and arranged to come out the next day in an aranya (two wheeled horse-drawn buggy) and get in a full day of collecting. This also fitted the description of a "hill near the town overlooking the sea."

Early in the morning I rode the couple of miles (sure I rode, after ten years working in an office I was not in condition to walk) to the breakwater, crossed to the island, worked through the brush around to the western side about half way up its slope. Climbing over rocks and through lower bushes was Selenicereus vagans. In cutting off a particularly clean branch tip I laid it against a wrist-sized limb of a whitish powdered small tree and gave a hard push with my knife. To my surprise the knife went right on through the limb as though it were cheese. A milky juice ran out, so I looked about for seeds for Robert Poindexter and Clarence Clum to grow into a Euphorbia of some sort. Leaves of the tree were broad, somewhat like a maple or sycamore. (The seeds I brought home grew into a narrow-leaved Frangipangi.) An Acanthocereus grew here, too. All day long I climbed hills, rocks, and trees but did not see the "Old Gent." By appointment, the aranya met me at dusk and loaded on the cuttings of Selenicereus, Acanthocereus, Opuntia (after all, I had to bring something home), and Pachycereus tips. Arriving at the hotel the aranya



Fig. 35. A general view of the Arroyo de Ibarra in the spring (March). The flowering season has passed, most foliage has fallen, the Bromeliad in the foreground covers thousands of acres with an impenetrable mass of hooked leaves. The only means of getting off of a trail is to hack a path with a machete.



Fig. 36. Left: First view of the hurricane scarred, solitary plant of Cephalocereus purpusii in the Arroyo de Ibarra, Rosario, Sinaloa, Mexico. Spines of this plant are red. Right: Twin specimens of Cephalocereus purpusii with long stems of Selenicereus vagans crossing above and between them. Notice the water-borne debris piled up in the lower right corner. This picture looks westward toward the bare salt flat only a few feet beyond this tangle. This picture was taken near Mazatlan. Spines of the Cephalocereus, and all in this vicinity, are yellow.

driver could not make change for a ten peso note, so I had to go into the hotel and ask for change from men seated there. One man gave me the change and helped me to bring in my several boxes of cacti. We struck up a conversation during which I told him of my fruitless search for plants of cardon barbon, bearded cactus

"Why, there is lots of that growing down by my home."

"No! Where do you live!"

"At Rosario, about thirty kilometers south. "I am going home tonight, so if you come down some time I can show them to you."

"I'll be down in the morning."

Early in the morning I boarded the Mazatlan-Acaponeta Toonerville "Automovil" and chugchugged to Rosario. The train station is a couple of miles from the city but a taxi is available for fifty centavos. Hoping that what did happen would happen, I stopped at my acquaintance home to ask which was the best hotel in Rosario. They invited me to stay with them. After a bite of lunch I was ready to start out. My host demurred. "It is too soon after eating. Let us wait a bit."

After a decent period of digestion I stirred: "May we not start out now, I am very anxious to see this cactus which has brought me all the way to Rosario."

"Pues, senor, it is too hot now." So we sat and talked for another hour.

Then, very brightly and full of pep, "Well, the sun is cooling off, may we go now?"

"I have sent the boy to the market for some sodas. We must wait until he returns so that we may be refreshed." Ah, me, fifteen hundred miles just to drink a coke and practice my Spanish. So another hour passed.

"Senor, I have only a week's vacation left and must return to the United States. If we can see the plants today, I can study them tomorrow and then return to Mazatlan to pack for the return

"But it is so warm yet. However, we will see them this evening." About this time the young son came running with the news that Jose was coming out of the hills. "Jose is one of my cowboys."

And then in walked Jose. Carried in each hand was a bundle of eight or ten perfect tip cuttings of *the plant* tied with wild grape. He

had been sent out early in the morning with explicit instructions, based on my host's observation of my cutting collection of the night before, to bring them in. Pale bluish-green they were, with reddish spines, and fine white hairs at the tips. One of two carried the Goat's Beard of the flowering area. Thus was explained the "stalling" of the past three hours. You can imagine now, that I really wanted to get out and see them growing in their native habitat. The talk was naturally about these and the other cacti listed for the Mazatlan area. I was on the lookout for Wilcoxia papillosa, collected at Culiacan, capital of Sinaloa, about 75 miles north of here, so mentioned it.

"Why, I have one of those growing out back in my garden. It has a root like a sweet potato." Wilcoxia papillosa's root is supposed to look like a big carrot, but what do I care. The long slim stems looked like a Wilcoxia. Later I found one growing wild and brought them both home. They are Peniocereus rosei, but that is a story for another time.

Next morning Jose, host and I went up a cattle trail into the Arroyo de Ibarra. Past impassible thickets of a two-foot Bromeliad; stopping to inspect 20-foot trees of *Pereskiopsis*; gathering in as trophies a giant iguana and a parrot shot on the wing; eating the honey-sweet acacia fruits after dodging hundreds (all but two) of fire ants which drop when their private stock of sweet is touched; drinking with a bamboo tube from a hole dug in the stream-bed to gather a scant seepage of water; we finally came to a narrowing of the canyon and a broken rock waterfall of fifty feet or so.

"There it is" says Jose. On the canyon's brim above the bare rocks grew a large plant with many new branches from its broken, twisted trunk. Jose explained that the hurricane of a few years before had broken off all the tender stems of everything in the region and that the new growth was just coming on again. I climbed up that rock like a veteran Sierra hiker and stuck my hand on a pestering Fishhook as I went over the rim. I didn't stop then, but after feast-



Fig. 37. Left: In the middle of the narrow strip along the upper estuary near Mazatlan where Cephalocereus purpusii, Pachycereus pecten-aboriginum, Selenicereus vagans, Rathbunia alamosensis, an Agave, Opuntias, an Acanthocereus, and many other odd plants grow. Beyond may be seen the bare white salt flat. Near the point where the two branches of Old Goat Whiskers cross is growing an air plant Tillandsia sp. a spineless Bromeliad. Two dark spots on the perpendicular stem of the Cephalocereus are bunches of hair from which flowers appear. Center: Close up of the Tillandsia growing on Cephalocereus purpusii. Notice that there is also a lichen growing along the ribs below it. Right: A five-stemmed plant of Cephalocereus purpusii. This picture was taken while I stood on the bare ground of the salty flat at the upper end of a narrow inlet of the ocean. This plant was no more than two feet from ground rendered barren by the frequent floods of salt water.

ing my eyes for many minutes looked around to see about twenty lineal feet of tiny, pretty, Mammillaria littoralis (so named by Mrs. Brandegee, but classed as a synonym of Neomammillaria mazatlanensis by Britton & Rose). This little, red, fishhooked cactus is quite different in appearance from the Mazatlan plant. This is something else to take up later. The Cephalocereus was a lone plant. No others grew within seeing distance and I did not find any others in considerable hiking. After photographing the solitary specimen from all angles I collected some of the little Mammillaria and slid back down the rocks. Looking around in this moist shady spot for whatever might be there I saw a tall stick of mottled green growing in much the same location as would a tiger lily in the upper canyons of Los Angeles County's San Gabriel River. It was my second plant of Peniocereus rosei, with a carrot-shaped root this time. So back to Rosario.

Having once seen Cardon barbon it was not hard to pick it out in the landscape en route to Mazatlan the next day. It always showed up on the hillside as we would cross a bridge over a small estuary. These estuaries are salt water inlets that usually are wet only with exceptionally high tides. Some are the mouths of small streams that carry water during the fall rainy season.

Arrived in Mazatlan with my valued load I determined to look in the right kind of spot to see if it was really a Mazatlan native. It is. If you go there to look for the plant go to the head of one of the hundreds of salt flats and, growing in rich leafmold in a strip scarcely ten feet wide, you will find it. Also there will be that thorny Agave-like Bromeliad, Selenicereus vagans, a Rathbunia larger than Rathbunia alamosensis in both stem and flower, with a pink flower; a velvety Opuntia, and an air-growing Bromeliad, tiny and without spines. I believe it is a species of *Tillandsia*. Going through the brush you will undoubtedly be grabbed and held tight by a vicious little blackberry with a stem no larger than a darning needle but as tough as piano wire and with more hooks than three commercial fishermen. Cephalocereus purpusii must grow in a strip two or three hundred miles long, but I did not see it except within the narrow strip of vegetation growing in the rain-washed-down and tide-washed-up mass of vegetable debris. This strip must be salty to some extent. The salty ocean bed is bare of living things, so that if you can come up one of these spots you will not have the dry, dusty battle with underbrush that I had, getting down to the edge of it.

Except for the one plant growing in the

Arroyo de Ibarra at Rosario, all others had yellowish spines. The plant body color is the same, as is the fine white hair growing at the tip and the heavier hair at the flowering areoles.

Two or three flowers developed during the first season that the cuttings were home. There is little warning that a flower is developing when all of a sudden it is in full bloom. It is pink to lavendar; has many, many stamens; the petals are short and give the impression of stiffness, although they are soft; the whole flower is short and does not extend far beyond the mass of hair from which it springs.

All of the cuttings which I brought home have done well and have sent out new branches. They were planted in a potting soil of oak leaf-mold and granite soil and were kept in a hot house during the first summer and winter. Since then they have grown slowly but steadily outside in my Santa Barbara garden.



ECHINOCEREUS CULTURE

April 1. Another April 1, the third since I began writing this column-No I'm not exactly calling myself a fool, but I was looking at some of my catalogues and lists and even I was tempted to buy some of those inch to an inch and-a-half Echinocereus which promise large clumps of ten to fifty heads covered with brilliant flowers. Then like a flash-No, says I, it takes too flowers. Then like a flash—No, says 1, it takes too long; why you've had some of those Echinocereus of yours ten years and thev're still not that large—better think before you leap. But you dealers do get me once in a while! I get letters, too, asking me how long before one of those "miracle cacti" bloom and I'm honest, darn it, and I tell them the whole sad story. Gentlemen, truth is stronger than fiction—tell them they're more ornamental for form, spine arrangement and coloring than for blooms, then if they do get a bloom it is the miracle you or I mention. E. pentalophus has two buds on a 7 stem plant in a 21/2inch pot of sandy loam. Got a three-inch cutting from Gene Ziegler's six-inch pot full of recumbent stems. He assured me it would bloom but it had to be kept dry until this happened. That was in July, 1933. It bloomed first time May 20, 1943. Always have kept it on the dry side. If you have never seen it bloom, you've missed a cactophile's dream (see "Texas Cacti" by Schultz and Runyon, pgs. 89-91, picture pg. 166). I give it a light watering every three to five days the year around but ten minutes after watering the soil looks dry on top—good drainage, loose soil, and small pot, perhaps accounts for my success.

April 3. E. pectinatus, perbellus and reichenbachii budded. Outside of spine color, size and name, anyone of the three in bloom could pass for the other as the blooms are as much alike as peas in a pod. E. dasyacanthus and rigidissimus shy bloomers in my greenhouse but give them an outside bed of sand to cover

the pots and regular watering and they become things of beauty both in spine color and flowers. A little shade at high noon usually preserves the flowers for a longer time and does not stop the display in early June and through July.



Fig. 38. Echinocereus flowers. Graham Heid photo.

April 5. E. knipperlianus fruit size of hazel nuts. Last bloom closed today; first one opened February 16. Last on an average of five days each. Bought it in 1940, a four-headed plant, grafted on Lemaireocereus weberi, for 75c. Louis Feher, former Cleveland dealer, thought stock was dead and plant would make cut-tings. A plant is never dead as long as "it looks even slightly green" to me. I took it out of the fancy pot, washed the dirt off the roots and put the plant in full sun for two weeks. Repotted it in a well drained sandy-humus soil. Watered it regularly all summer until September then let it dry out and set it on a shelf near the roof glass with a heavy watering once every two weeks beginning about Thanksgiving. Buds appear as bumps under the skin along the ribs early in December. From then on it stays in the same spot, as the buds invariably appear on the sides of the stalks away from the strong light (i.e. westand south) and even a few develop on the undersides of the sections. I think I can safely say never move Echinocereus or Echinocactus unless the direction of the light is the same and the temperature is the same as even the slightest variation blasts the buds. I do not move any of my plants unless I mark the position so I can replace it the same way, especially during the time my eleven year bloom record shows they have budded. After buds are set and developing, I'm not as careful.

April 7. E. viridiflorus and chloranthus have buds. It is hardy here if covered with hay. Grows best for me in my "desert soil"—a gravelly, rich in lime and humus, third sharp sand composition. Similar to pectinatus in spine form, but not in beauty of flowers, chocolate and green. E. chloranthus from Texas and New Mexico likes plenty of lime. Has its green hairy spined buds up and down the ribs instead of about the top of the stems as in E. viridiflorus.

April 11. E. conoideus, another lime lover just beginning to grow but disdains my overture and refuses to bloom. Red blooms, I expect, as it resembles E. coccineus which I did have before I began flirting with the beauties "south of the border." E. ehrenbergii, pensilis and merkeri are three of my "nursery types." They all thrive and multiply satisfactorily from the base but no blooms. My friends admire their fine shiny, clean cut look. Sandy soil, good light and limited waterings is supposed to be to their liking. E. ehrenbergii is a dwarf type, while the other two are heavier and more formidable.

April 16. E. reichenbachii and perbellus bloomed.

If I kept these cacti for no other reason than their arresting fragrance it would suffice.

April 23. E. fendleri in full sun on shelf near the glass during winter. Plunged in bed of sand during summer and early fall. Grows at the base but refuses to bloom. I bought it in July, 1939, and have given it the same treatment that I have given my other desert types. It did bloom in May, 1940, although it bad been "up north" for three years. E. enneacanthus is more slender and less beavily spined. Usually waits until the first week in June to bloom when the chill is out of the sand bed and the Lake mist is gone. Both of these plants will tolerate some shade and thrive but they do better in full sun.

April 29. E. blanckii with twenty-five stems was given to me two years ago. Mrs. Jones had it for several years but it never bloomed for her. I hung it in full sun next to the glass last winter and buds appeared in late March. Bloomed May 20, 1943. One of the light-lavender pinks. So far this year there are no signs of buds, although I gave it the same treatment this winter as last. It has three new stems, however.

April 30. E. stramineus with eight stems fills a fiveinch pot to overflowing. Grows the year around on a shelf in full sun. It has been in the same pot for three years. No buds but highly ornamental and interesting. Engelmannii, berlandieri, weinbergii, and conglomeratus are others which also grow and will, I hope, eventually bloom.

Next month Echinocactus

FROM CANADA

This North Country of Amos, Quebec, has no flowers and no trees to look at when the winters are so long and so hard; I was lonesome for lovely trees to see, lovely flowers to admire. When I saw in a JOURNAL a picture of the flower show of New York it drew my attention. It was a large sombrero planted with cacti, it gave me an idea and I went hunting for a sombrero myself. I succeeded to get one from Mexico and had it decorated at a Montreal flower shop.

All of these plants, except one, died due to lack of good soil, drainage probably and light. One of them survived and today the tiny little thing has became a very nice Echinopsis with large white flowers.

Later on in a magazine I noticed Johnson's Cactus Garden adv. and I started with them to buy plants. At this time I knew nothing about cacti and lost several of these. Today I have quite a good collection of 250 pots of plants, beside a box containing over 100 offsets on their way to root.

First a picture of the Greenhouse taken last summer. At the end you can distinguish a tall plant which is a *Pipthanthocereus monstrosus* about 25 or 30 inches tall. Near by you also see a *Trichocereus vollianus* 25 inches tall.

Another picture shows the Greenhouse with new modifications in order to be able to heat it in winter. That picture was taken by the end of November. Not much snow yet as you can see, but believe me December was rather hard with colds as low as 50° below. The plants don't seem to feel it much.

Another picture shows Eriocereus jusbertii which bloomed on August 15th. On this plant in particular I have used fertilizer which was spread on the top of the pot. Notice also that the mother plant which is the longest stem is not as large, healthy and fat as the stem on which the flower stands and I figure that fertilizer has produced that result.

A 31/2 inch Hamatocactus setispinus bore a quantity

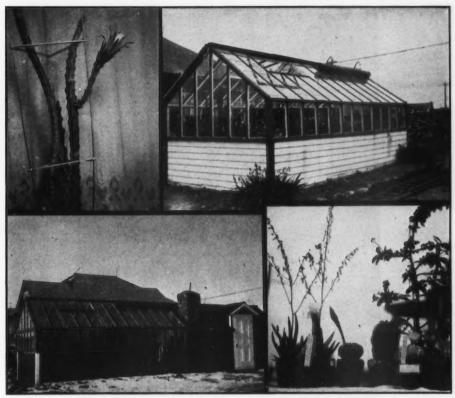


Fig. 39. Flowering cacti and glasshouse of Laval Goulet in Amos, Quebec.

of blooms all summer. Epiphyllum ackermannii bloomed gorgeously two years ago, but last year it was sick and I nearly lost it. Nevertheless it is now in healthy condition.

The first Echinopsis in bloom I have ever seen is the one with three flowers. The flowers were very white.

The photo gives you an idea of the flowers I had at one time. You can also notice the small pots in which they are planted. One experience I had with Echinopsis calochlora: It was sick and apparently with nematodes, so I cut back all its roots, and tried to revoot in sand. While it was in sand and still without any roots, buds burst out. Then to give it a chance I placed it in the regular soil mixture and the buds developed and rewarded me with a nice flower which can be seen on one picture.

As you can see in the Northern part of Quebec where the winter spends the summer we nevertheless enjoy a little of your privilege to be surrounded with nice nature and gorgeous flowers.

Last summer I really had nice blooms and I expect

Last summer I really had nice blooms and I expect much more this year with my greenhouse. The soil I use is an ordinary good loam mixed with coarse sand and small part of crushed bricks, size of a pea. I don't like glazed pots and use only clay pots rather small for the size of the plants as the pictures show. I have been using in the summer time, plant chemical salts with Vitamin B-1, but as this required more trouble, I have tried last year to spread, at the begin-

ning of the season, a little fertilizer on the top of the

I never white wash the glass of the greenhouse and always water the plants on bright sunny days. I have, in the beginning, purchased good size plants but no flowering ones. E. jushertii was about 10 in. when I bought it, it did not grow the first year for lack of proper care. The mother branch on this plant has never bloomed though it formed a bud which did not reach maturity. The new growth has bloomed last year and I expect it to bloom this year, also.

In winter, I used to let my plants go dormant. For the last years I used to keep them at home on the sunny side of the building. Water was given them every two or three weeks. This year they are in the greenhouse but I don't water them any more. Nevertheless at present (Feb.), signs of life show up with the Epiphyllums and Eriocereus jusbertii.

You might be interested to know that the Montreal Botanical Gardens have one of the nicest collections of cacti and succulents; they must have 2,000 or 3,000 different plants and Mr. Caumartin, who is in charge of the said plants, really knows something about cacti and has nice plants and nice results. I am certainly very thankful to him for he has been very kind to me and helps me very much in giving me information in the taking care of plants. If cactophiles have the opportunity of being in Montreal they certainly would have something lovely to look at right there.

LAVAL GOULET.



Fig. 54. Haworthia fasciata (Willd.) Haw. forma variabilis Poelln. nat. size.

Notes on Haworthias

By J. R. BROWN

Haworthia fasciata, (Willd.) Haw. forma variabilis, Poelln. in Repert. Sp. Nov. XLIII (1938) 96, in Cact. Journ. VI (1938) 75, photo.

In a group of typical *Haworthia fasciata*, two remarkably distinct forms were found.

Leaves about 5 cm. long, 1-1.5 cm. wide towards the base, occasionally somewhat falcate, dark green, somewhat shining, face of leaves smooth, back of leaves in one form entirely smooth, in the other form the back of the leaves bears medium sized, solitary, very irregularly distributed, slightly prominent white tubercles in lengthwise lines and in somewhat indistinct transverse rows.

Type locality: Elands River Road, Uitenhage

Distr. Collected by F. J. Cook.

The writer has not seen the form with entirely smooth leaves, only the tubercled form as shown in the illustration. This plant shows leaves a little longer than described, this, no doubt, partly due to the length of time in transit from So. Africa. The leaves are also somewhat wider, and are 5-7 cm. long, to 2 cm. wide towards the base. The tubercles show great variation in their distribution on different leaves, one or two leaves having only a very few tubercles.

The discovery of this plant creates the seeming contradiction of an entirely smooth leaved Haworthia in the sect. *Margaritiferae*. It will be interesting to observe under cultivation if these variable forms of *Haworthia fasciata* will retain this decided variability or otherwise.

NOTES ON CACTI OUT OF DOORS IN CALIFORNIA

By F. B. Noyes

(Part V. Continued from March JOURNAL)

EDITOR'S NOTE: The plants mentioned in this article should be among the first with which one should be familiar. You will find them pictured in: Cacti for the Amateur, Cactaceae, Britton and Rose, the Journal and the Bulletin.

O. imbricata is another so-called Cane Cactus. It is quite hardy, easily grown and has pink or purple flowers. It will become ten or twelve feet tall in time, but must be thinned to prevent breakage. O. lagopus from South America is a very hardsome species with yellow spines and hair or wool. It has

not blossomed here so far.

Opuntia leptocaulis is quite common throughout the southwest. The scarlet fruits are proliferous, the flowers greenish yellow and not handsome. O. ramosissima, common on our California deserts, has slightly larger stems than O. leptocaulis, much longer spines and the characteristic diamond-shaped plates on the stems. New growth is succulent the first year but becomes woody thereafter.

O. salmiana comes from Brazil. It is similar to O. leptocaulis in having scarlet proliferous fruits but is not as vigorous. The flowers are pale pink or cream.
O. spinosior, as the name indicates, is spinier than anyone would like. It is often confused with O. versitation. color but has larger branches and more spines. The branching habit is also different. O. versicolor is a large cholla with long joints and bronze flowers. It is a desirable ornamental cactus.

O. subulata resembles O. cylindrica in habit but has larger spines and holds its leaves a year or more when not frosted. It is not quite as fast a grower so manages to stand under prosperity. It does not flower

until reaching considerable size.

O. verschaffeltii comes from Bolivia and is small in contrast to the name. The flowers are orange-red. It is easily grown as a pot plant or in the open. vestita from Bolivia is low growing with some white hair which allows the green stems to show through. The flowers are red and the fruit scarlet.. This cactus does better with some shade.

From the Opuntia sub-genus, TEPHROCACTUS, there are three members in the garden, O. glomerata, O. strobiliformis and O. turpinii. The joints of all are globose or very short cylinders. They do not become tall or large and the papery spines are quite long.

The sub-genus, PLATYOPUNTIA, has many species, hardy and tropical. It is widely scattered throughout North, Central and South America. The following

Opuntia aurea grows in Utah. It is low growing with small thick pads, yellow flowers, red fruit and mean glochids and spines.

O. elata is from Paraguay and has orange flowers

and red fruits. As it grows very fast it generally falls

and takes to a clambering habit.

O. engelmannii is a hardy prickly pear with large spines, yellow flowers and edible red fruits. A highly colored red jelly can be made easily from this fruit

but it has a rather insipid flavor.

O. erinacea and O. ursina are closely related. They can stand considerable dry cold, but rot easily from too much dampness. Their pink or yellow flowers make an interesting contrast to the white spines that hide the pads. These spines burn off very easily but if burnt off it will take at least a seasons growth to replace them. Like Santa Claus and his beard they look much different after a fire.

O. leucotricha is a large upright cactus from Mexico. It is similar to O. erinacea but the pads are larger and rounder and it possesses only about 25% as many white spines. As the spines are persistent it is a difficult cactus to handle. The yellow fruit is edible and has a tartness that is found in few Opuntias.

O. lindheimeri from Texas has two varieties, yellow and a red-flowering type, but both have the same red edible fruit. This is a large spreading

prickly pear and needs plenty of room.

O. linguiformis or "Cow's Tongue" sometimes has pads over a yard in length. It is a shy bloomer with yellow flowers and red fruit. By pruning and training many queer shapes can be obtained. O. macrocalyx has not flowered here yet. The pads are rather commonplace but its name indicates that the flowers should be better.

O. macrocentra has purple fruit and yellow flowers. This is a handsome purple padded cactus from the Big Bend district of Texas and rarely reaches three feet in height though often spreads twice that dis-

tance.

O. microdasys, though very common, is good looking and gets even better looking with age. The glo-chids on old stems or pads are larger, more shiny and also meaner than on new growth. The flower is a greenish yellow and the fruit scarlet. O. microa greenish yenow and the fruit scarlet. O. micro-dasys var. albispina has white glochids, which look about the same on old and new growth. This cactus has not flowered here yet. O. rufida resembles O. microdasys but has red glochids instead of yellow ones and round instead of yellow resembles. and round instead of oval pads. The growth is sturdier and it requires less thinning but it will become too thick if left alone entirely.

O. monacantha variegata is a little tender. It does not like either too much cold or too much heat. The variegated green and white pads and reddish new growth make it a striking plant. The flowers are yellow and the fruit red. O. rhodantha has red flowers and is quite hardy. This low-growing small cactus

can easily be kept within bounds.

The pads of O. santa-rita are purple or blue in winter but generally become green in summer. On very old plants the purple color may last all the year.

The flowers are large and yellow.

O. scheeri, a native of Mexico, is covered with widely spaced yellow spines arranged in a star shape. It is one of the few Opuntias which have spines more

attractive than the flowers.

Opuntia zebrina is a native of Florida with a spreading habit. It requires more water than the desert types. The flowers are yellow and the fruit red, ripening a year after the flowers.

Oreocereus celsianus and O. trollii are quite slow growing. O. fossulatus makes medium growth and has the longest hair of this genus. All have pink or red flowers which contrast with the white hair and yellow spines. They need some afternoon shade.

Pachycereus pringlei has proved itself too tender for this climate. But I do believe that if I could get this immense Mexican giant up to about ten feet before a cold winter came around it might become es-tablished and last over. The growth is much faster than that of Carnegieae gigantea. This is one cactus

that had to be given up with regret.

The large beet-like root of Peniocereus greggii must have its top an inch or so above the ground level. It has a depression where the stem joins the root and rot commences here in winter unless this part is above the soil. The grower will rarely be in trouble if he follows this method. It is a native of Arizona and famous for its fragrant night-blooming

Pilocereus alensis from the state of Jalisco in Mexico

is not doing very well here, although it is still trying to live. *P. cometes* does better and when grown up will be hardy enough for our winters. *P. palmeri*, which may be a variety of *P. cometes*, is growing rapidly and in good health. This seems to be the best suited white haired Pilocereus for out of doors. The first two will probably have to be handled as greenhouse cacti. *P. polylophus*, though still small, has passed the winter in good shape and is growing well. It is the only one without an abundance of white wool or hair.

Rathbunia alamosensis takes on a purple tinge in winter but returns to normal in warm weather. It is

still too young to flower.

Stenocactus crispatus and S. multicostatus look much the same but the first has violet striped flowers and the second white ones. These two are the most rigid of the genus. The flowers of S. coptonogonus are white with a pink stripe down the center of each petal. S. lamellosus has red flowers and extra large strong spines. It needs some lime in the soil. All Stenocactus are from Mexico. They are easily grown and should be in most cactus gardens.

Stetsonia coryne, which looks like a Lemaireocereus, is a very large and slow-growing cactus from Argentina. I doubt if there is a full grown specimen in this country. The average growth of seedlings here is from four to six inches a year and requires a minimum temperature of 90 degrees for active growth. The

long spines are dark gray or black.

Strombocactus disciformis and S. lophophoroides resemble an Ariocarpus and need the same treatment, much lime and very good drainage. Both have white flowers. The one with the longest name is the smaller

of the two.

One species of *Thelocactus* has as finely colored sines as any plant of the cactus family. This is spines as any plant of the cactus family. This is Thelocactus bicolor var. tricolor. The flowers are violet and open on several occasions during summer. It is strictly a Mexican species. T. bicolor has reddish violet flowers and gray spines. It extends into Texas from Mexico. T. leucanthus looks like a Coryphantha with red flowers. It branches and can be grown from cuttings. T. subterraneus is now considered a variety of T. mandragora. This cactus is peculiar because below the body is a woody crooked stem above ground, often lying on the soil, which connects it to the sub-terranean beet-like root. This body is quite small and the flowers are as large as it is. T. uncinatus has been transferred to this genus from Ferocactus because of the location of the flowers and the method by which the seeds are attached. It has long hooked spines and peculiar chocolate flowers which never open wide. This may be because the spines are so thick that there is no room for them to open. Although average conditions will do, it will endure and grow in a drier place than most Ferocacti.

Trichocereus bertramianus is still too young for a report. T. bridgesii has few spines, branches from the base and has a different appearance than most of this genus because of its less numerous spines. The flowers are white and nocturnal which is characteristic.

T. pasacana, from Argentina and Bolivia, grows very large and resembles a Ferocactus when young. With extra care it can be forced into a moderate rate of growth instead of its naturally slow pace. It is covered with plenty of strong yellow spines. This cactus is very desirable and does well around the bay as well as inland. There are two fine young specimens about four or five feet high at the University of California Cactus Garden in Strawberry Canyon.

T. shaferi looks like an extra plump T. spachianus but never reaches half the height of the latter. It forms clumps of large diameter. T. spachianus is a strong

grower reaching as much as fifteen feet. It is much used for grafting stock. This is the best known species of the genus and will grow in nearly any soil.

T. terscheckii is only two years old and too young to say much about its behavior. T. vollianus is also rather young but so far looks like a larger and more vigorous T. spachianus. T. werdermannianus is said to grow extremely large with a stem two feet in diameter. But the specimen here is only one foot high, so little can be said about it yet.

In conclusion I would like to say that cacti always appear interesting and appropriate in their natural setting. We often wonder why. It is because they harmonize with their surroundings. Set your cactus garden among hills and rocks. They are at home. If you surround them with evergreen trees and broad leaf plants they look entirely out of place.

Anybody can have a good cactus garden by following nature's rules, but even experts have never im-

proved upon nature's own arrangements.

CACTUS AND SUCCULENT ARTICLES Compiled by Daniel Neumann, Jr.

Adventures in cactus growing. M. Fordyce. Gardeners Chronicle of America 46:309, Nov., 1942. Three plants worth knowing. T. H. Everett. Gardeners Chronicle of America 46:256, Sept., 1942. Three plants worth knowing. T. H. Everett. Gardeners Chronicle of America 47:9, Jan., 1943.

Three plants worth knowing. T. H. Everett. Gardeners Chronicle of America 47:146-7, June, 1943. Succulents from everywhere. M. C. Shaw. Gardeners Chronicle of America 47: 227-8, Sept., 1943.

New and critical Euphorbiaceae from the tropical far east. L. Croizat. Arnold Arbor Jour. 23 495-508,

Oct., 1942.

Novelties in American Euphorbiaceae. L. Croizat. Arnold Arbor. Journal 24: 165-189, April, 1943.

Christmas cactus. F. K. Balthis. Flower Grower 29: 531, Dec., 1942.

Exotic but easy orchid cactus. R. A. Langley. Better Homes and Gardens 21: 88-9, Oct., 1942.

Ecological aspects of the prickly pear problem in eastern Colorado and Wyoming. G. T. Turner and D. F. Costello. Ecology 23: 419-26, Oct., 1942.

Survey of biological destruction of cactus on Nebraska range land. M. W. Pedersen. American Society Agron. Journal 34: 769, Aug., 1942.

House plants that any one can grow. P. Carlisle Horticulture 20: 442, Dec. 1, 1942.

In praise of the cactus. E. Evans and W. Evans. Travel 81: 20-1, July, 1943.

Fight for the cactus. American Forest, February, 1943.

My favorite Epiphyllum. Flower Grower, July, 1943.

KODACHROME EXCHANGE

We have over 3000 slides in our collection and over 1000 duplicates for exchange. Do you happen to know of any good prospects? We need close ups of cacti, group and mass views largely from Ariz., N. Mex., So .Cal., Wash., Oreg., and Rocky Mts., and adjacent plains. I am particularly anxious to get kodachromes of one or more flowers of *Carnegia giganiea* to complete our state flower set. Our northeastern species of orchids are nearly complete. No western and few southeastern orchids.

P. L. RICKER, Wild Flower Preservation Society 3740 Oliver St., Washington, D.C.

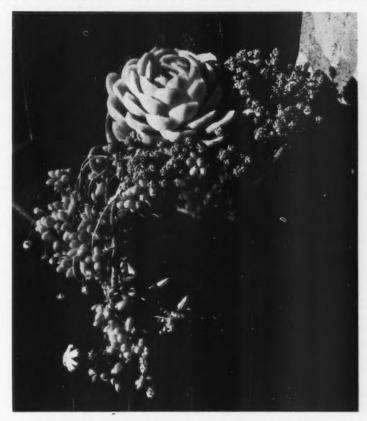


Fig. 55. An arrangement consisting of Echeveria elegans, Othonna crassifolia, and Sedums by the late H. W. Clark, author of "Paper Weight Gardens."

(Jour. Vol. II, pg. 433).



Fig. 56. A bed of succulents in the collection of A. S. Harmer, Dieringer, Washington. The large clumps of cacti are the native *Pediocactus simpsonii*.

AFFILIATE NOTES

Now comes April and with it the dead line for this number of the JOURNAL, so I think it is rather up to me to get busy.

From the Bulletin, Mary Lee Rose, Editor:

The Heart of America Cactus and Succulent Club, held the last meeting at the home of Mr. and Mrs. Charles Lewis. Mrs. Lewis gave a very interesting talk on Morphology and Mary Lee Rose a talk on Asclepiadaceae.

"There was also a letter from Sgt. Robert Rose in which he describes a trip to the desert via the U. S. Army. That section of the desert in which his division encamped offers quite a variety of our native cacti.'

Well "Bob," you almost tempt me to join the Army. From the Cactus Digest, E. M. Gearhart, Jr., Editor:

The Henry Shaw Cactus Society, Cactographs by Ladislaus Cutak. "Aloe africana. This was the first time this species had bloomed for us. I raised it from seed received in 1934, so you see it took exactly ten years from time of sprouting to bloom.

"In my estimation, Aloe africana is one of the showiest of the small tree-like aloes. We have exactly three plants growing in the South African House, each having a stout upright stem about three feet high.

The leaves are sword-shaped, crowded in a dense rosette at the top of the stem and bluish green in color. Conical rigid, reddish-orange teeth or pricklets appear at the margins and these prickles also appear on the underside toward the extremities.

The flowerstalk arises from the center of the leafy rosette and the greenish-yellow, pendulous, cylindrical flowers are crowded together in a thyrse-like inflores-

cence

"Individual flowers, as they expand become ascendant at the tip, showing off the orange-red stamens and style which protrude for some distance beyond the corolla. The thick head of flowers really makes a wonderful display, but the flowers can be classed as ephemeral, for they do not last very long. Aloe africana hails from the Cape region in South Africa."

It is a privilege to be able to pass this along.

From Our Cacrus, by Mr. and Mrs. L. A. Frank, "Gardening has always been a profitable pastime. Many physically or mentally ill persons have regained health and courage through gardening activities during times of stress. No other occupation, in our opinion, has so much power to bolster morale. No other hobby requires so little effort for so much reward."

I've often thought I should do more gardening.

Mrs. Margaret Radden, (Cor. Sec.) writes:

'The Cactus and Succulent Club of Chicago held their Jan. meeting at the home of our charming hostess, Mrs. E. T. Berry, after the meeting Mrs. Berry had a delightful surprise for us. Beautiful moving pictures of South America and Mexico were shown and enjoyed

"Mrs. Aikins, our new President, gave each member one of her own raised Mammillaria elongata var.

minima for our experimental plants.

"Feb. 8th., we met in the home of Mrs. Margaret Radden. The topic was Lobivias, one of my favorite cacti. Mrs. Radden gave five potted succulent plants for door prizes and an experimental plant of Opuntia papyracantha for each member.

The March meeting was held at the home of Mrs.

William Glaws, the topic for the evening was Astro-

phytum.

'Mrs. Akins brought pots, soil and seedlings of Hamatocactus setispinus for each member. Each one

had to pot her own plant, take it home and raise it for one year. After one year's growth we bring our ex-perimental plants to the club to see the progress that has been made. The door prize was a gorgeous Astrophytum ornatum."

I think it was Charles Dickens who brought out the idea that we gain the most knowledge by physical

demonstration.

Mrs. R. H. Rodgers writes:

'The El Paso Rock and Cactus Club, whose members all have rock and cactus gardens extend an invitation to visitors at all times.

"We love to meet and talk with people who are interested in such a fascinating hobby as ours. We are looking forward to the time when we can resume our

"List of Officers: President, Carrie Worrall; Vice-President, Viola Mershon; Secretary, Kathleen Miller; Treasurer, Grace Cardwell; Program Chairman, Blanch

Niedermeir.

Well Mrs. Rodgers, I wouldn't be surprised to see some of us wandering over that way after the "duration."

Mrs. Isabel Channing, (Sec.) writes:

"The Amateur Cactus and Succulent Society of British Columbia, would like information regarding the shiming houses, who deal in seeds, in the following countries, British Honduras, Jamaica, the Bahamas, Australia, South Africa, Kenya and Tanjanyika.

They wish to raise plants to start an Empire collection (address this office.) If we get any results Mrs. Channing, I will forward them to you at once.

Mr. C. L. Wise, (Pres.) writes:

The Oklahoma Cactus and Succulent Society met in the Municipal Building Civic Center on Mar. 16th. Mrs. J. B. Lanklord prepared a lesson on 'Aizoaceae,' and also discussed the art of correct arrangement for 'Dish Gardens.' Mrs. Jas. H. Hyde gave instructions on the care of plants before placing out doors in the spring.

Sunday, Mar. 26th, was 'Open House' Club members and friends at the home of Mary and Charles Polaski, to celebrate the blooming of some 150 fancy camelias and also to admire their three greenhouses full of cacti, succulents and interesting grafts. Mr. and Mrs. Boruff from the Kansas City Club were

among our visitors.

Well friend Wise, with the aid of an air mail stamp, we made the dead line. "Playing ball, I calls it."

Mrs. Lanita Olin, (Sec.) writes:

'The Southwest Cactus Growers and the Southern Calif. Cactus Exchange, held a joint meeting at the home of Mr. and Mrs. Homer Rush, Sunday, Mar. 5th. After the business meetings, a fine collection of slides of desert wild flowers were shown by Mr. John

Real affiliation.

Miss Muriel Colburn, (Pres.) writes:

"The Denver Cactus and Succulent Society held a 'get-to-gether' at the home of Mr. and Mrs. C. E. Hollingsworth in Littleton, Colo., on Thursday, Mar.

"The evening was spent in looking at and enjoying the blooms on Mr. Hollingsworth's cactus. We also had a spelling lesson of cactus terms. The winner was rewarded with an Opuntia vestita."

Be fraternal—Take the JOURNAL.

Please send your Affiliate Notes to Chas. A. Place, 645 W. 40th Pl., Los Angeles 37, California.



Because succulents respond easily, do not take up too much room, are beautiful, and can be grown almost anywhere is enough reason to get interested in these plants. At any rate, Mr. J. A. Schuurman, Consul General of the Netherlands at New Orleans, fell for them very strongly. It just goes to show that our circle is composed of people from all walks of life. I first met this gentleman in 1936 when he was stationed in Ottawa, Canada. He has been in consular service for a great number of years, serving in England, France, Germany, United States, Canada, Turkey and China. His interest in plant life was aroused, of all things, in bed at Montreal in the winter of 1932. He had bought some second-hand books dirt cheap and one night he took one of the books with him to bed to read. It happened to be a book on plant culture. Soon after, he began collecting plants of all kinds and became a great believer in succulents. At one time he had 1500 species, but he simply could not take his plants along when he was transferred to this country, owing to plant quarantine. At present he is building up a new collection in New Orleans, where he finds that succulents do very well out-of-doors, in spite of the heavy downpours in summer. If he stays down there long enough, we can be assured that this Hollander will create some interest in our hobby in Louisiana, where at present the knowledge of succulents is confined to a surprisingly small number of people. Mr. Schuurman made a great contribution to English succulent literature when he undertook the translation of a Dutch book by J. J. Verbeek Wolthuys on the "Monstrosity and Cristation in Succulent Plants." This book was to be distributed in all courses. on the "Monstrosity and Cristation ...
Plants." This book was to be distributed in all countries where English and Dutch are spoken, the expense of publication to be borne by our friend. Along comes the war and it is doubtful that more than a few dozen copies left Holland. I happen to be one of the lucky possessors of this work.

I will always remember Pat White's first visit to Shaw's Garden. It was in the summer of 1940 on his return from a successful Texas trip and his cactusloaded car groaned and squeeked as he parked it beside the Main Gate curb. Well, you know what happens when two kindred souls bump into each other. Why, we just talked cactus and compared notes and were oblivious to anything that happened around us. Oh yes, Mrs. White had accompanied her husband on this trip and she proved to be just as enthusiastic in Pat's hobby as he was himself. Lunch time came, but that didn't matter. We, three, just completely forgot about eating. Cactus people are funny that wav. Considerable time was spent in our display and propagating houses, after which we went back to the car to look over the collection of cacti the Whites had gathered on their Texas excursion. Both Pat and the Mrs. began unloading boxes, opening them and extracting the spiny contents. Before long the sidewalk was cluttered with cacti, just like a merchant displaying his wares in a public marketplace in Mexico. Passersby stared in amazement at the bizarre assortment and were even more astonished when they tried to make out the botanical lingo we were conversing in. Pat White has made many trips to the South, but the one through Texas still remains the most interesting. He plans to re-visit the Big Bend country as soon as the War ends. The White collection consists of about 500 different



"Gosh! This is the rare what-o-cereus who-sensis!"

plants, about half of which are cacti and the rest succulents. Of the cacti the *Echinopsis* rate first place. This group does exceedingly well for him and the plants never fail to present some flowers in season. He has many South African succulents and a good representative collection of Haworthias. Mr. White, for the present, heads the Cactus and Succulent Society of Milwaukee.

A new genus in the Cactaceae has recently been described by Paul C. Standley and Julian A. Steyermark in Publication 549 of the Field Museum of Natural History issued in February. The monotype, Bonifazia quezalteca, is one of the handsomest of Guatemalan cacti and although its flowers are not so large as in some of the species of Epiphyllum, they are borne in great abundance and are of exceptionally beautiful color and form. The new genus is closest to Chiapasia, which also occurs in Guatemala. A new sun-cereus is also described in the same work. It is Heliocereus beterodoxus and grows as an epiphyte in the wet forests of the lower slopes of Volcán de Fuego. It can be distinguished from all other Heliocerei by the relatively long corolla tube.

I felt a little overworked the other night, so to the show I went to recuperate. And the only way I can do this is to see a good movie—with lots of singing, dancing and comedy. "Riding High" with lovely Dorothy Lamour did the trick. It wasn't an outstanding movie, just an ordinary garden variety of screen musical comedy with a western setting, but it was highly entertaining and in technicolor. To me it was doubly interesting because many of the scenes were taken in the land of Saguaros on the Papago Indian Reservation, south of Tucson. The saguaros here are not so spectacular as in other Arizona locations, but the region happened to be just the one where I first became acquainted with these huge vegetable behemoths in the wild state.

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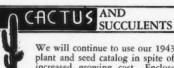
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